

ACC NR: AP6028568

should be simulated.

Taking the works of professors V. V. Sharonov and V. S. Troitskiy into consideration, as well as data obtained by Luna-9, it is concluded that the lunar surface has a hard structure; from an analysis of Luna-9 data it is possible to conclude that the strength of the moon's surface is about  $1 \text{ kg/cm}^2$ . During its operation Luna-9 increased its inclination  $6.5^\circ$  and turned  $3^\circ$ . Although the reasons for this have not yet been determined, it can be assumed that the position change was somehow connected with the stoniness of the surface. The lunar surface in the Luna-9 landing area is dotted with numerous stones and clods of various sizes, from several centimeters to several decimeters. The Luna-9 landed in an 18-m-diameter crater with a depth of about 0.7 m. The presence of several small craters with steep slopes (up to  $55^\circ$ ) was noted. All of these lunar surface details must be taken into consideration in developing a mobile automatic lunar station.

The initial scales for modeling are length, modulus of elasticity, materials, and acceleration of gravity. All other scales (i.e., mass density, speed, forces, etc.) needed to develop an MALS model, and to convert the experimental results obtained from the study of an actual scale model of a

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lunar station, can be deduced from the three main scales mentioned above on the basis of the similarity of conditions. To have similar conditions, it is necessary that the MALS models and their undercarriages be made from materials with the same Poisson's ratio and coefficient of friction as those of the full-scale design. The gravity scale is determined by the experimental conditions. The final selection of model dimensions and materials is made, taking into account the overall dimensions and capabilities of the testing equipment, pressure chambers, and test ranges. The development of MALS models built to 1/6, 1/3, and 1/1 scales is discussed. If the dimensions of a model are decreased by six times, it is better to make the model from the same materials as the full-scale design. For the 1/6 scale model, the linear speed scale is equal to 1. Running tests as well as some operational tests of a 1/6 scale model can be carried out in a pressure chamber simulating the lunar vacuum. Due to the small value of the scale of mass, however, the development of a mobile model with such small overall dimensions, while retaining similarity, can create a number of difficulties.

It is considerably simpler to develop an MALS model on a scale of 1/3 or 1/2. In developing a full-scale model, the scale of mass should be six times smaller than full-scale mass. In this case, a full-scale undercarriage for the model is developed from full-scale materials. The re-

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maining elements (payload, structural parts, etc.) should be decreased so that the total mass of the model will be six times less than that of the complete full-scale vehicle. The lunar station model will have the following specifications: the drive power and the linear and angular speeds will be increased by 2.5 times, angular acceleration will be increased by 6 times, and the mass and inertia moments of the model will be decreased by 6 times. The testing period will be decreased 2.5 times as compared with the full-scale model; the value of the energy (of operation) and the forces acting on the model will be equivalent to their full-scale values. Orig. art. has: 2 figures. [FSB: v. 2, no. 11]

SUB CODE: 22 / SUBM DATE: none

Card 4/4

TSYBUL'SKIY, Ye.; KOMISSAROV, V., polkovnik; ZAKHARCHENKO, V., leytenant;  
KOVAL', A., kapitan

Let's encourage creative group participation. Komm.Vooruzh.Sil  
2 no.6:40-45 Mr '62. (MIRA 15:3)

1. Zaveduyushchiy sektorom oboronno-massovoy raboty TSentral'nogo  
komiteta Vsesoyuznogo Leninskogo kommunisticheskogo soyuza  
molodezhi (for Tsybul'skiy). 2. Starshiy instruktor redaktsii  
zhurnala "Kommunist Vooruzhennykh Sil" (for Koval').  
(Communist Youth League) (Russia—Armed forces—Political activity)

KOVAL', A., kapitan

Beginning of a long march. Komm.Vooruzh.Sil 3 no.19:49-52

0 '62.

(MIRA 15:9)

(Military education)

VOYTSEKHOVSKIY, B.V.; KOVAL', A.A.; SUN'TSAO [Sun Ts'ao]

Shadow method for registering waves on the surface of a  
liquid. Izv.Sib.otd.AN SSSR no.5:127-129 '59.

(MIRA 12:10)

1. Institut gidrodinamiki Sibirskogo otdeleniya Akademii nauk  
SSSR.

(Waves)

VOYTSEKHOVSKIY, B.V. (Novosibirsk); KOVAL', A.A. [deceased] (Novosibirsk)

Carrousel-type hydraulic duct. PMTF no.2:137-139 JI-Ag 60.  
(MIRA 14:6)

(Hydraulic models)

KOPANETS, Ye.G.; KOVAL', A.A.; SUKHOTIN, L.N.; TSYTKO, S.P.

Levels of the  $\text{Cl}^{35}$  nucleus with excitation energies between 8.2 and 9.2 Mev. Izv. AN SSSR. Ser. fiz. 29 no.7:1201-1206 J1 '65. (MIRA 1:7)

1. Fiziko-tehnicheskly institut AN UkrSSR.



KOVAL', A. A.

"The Biological Basis for Certain Methods of Rose Propagation by Green Cuttings." Cand Agr Sci, Moscow Agricultural Acad, Moscow, 1953. (RZhBiol, No 3, Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

So: Sum. No. 481, 5 May 55

Koval, A.A.

USSR/Cultivated Plants. Ornamental.

L-9

Abs Jour : Ref Zhur - Biologiya, No 16, 25 Aug 1957, 69466

Author : Koval, A.A.

Title : Reproduction of Roses by Green Cuttings.

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1956, No 22, 180-187

Abstract : Beginning in 1949, the ornamental horticultural station of the Timiryazev agricultural academy conducted experiments on rose production (reproduction) by green cuttings. The article describes the grafting technique and the treatment of cuttings by growth stimulants, the hothouse preparation for cultivation of cuttings and their care. The preferable varieties suitable for breeding on their own roots are enumerated. It was established that tea polyanthus, climbing and Bengal roses are reproduced by grafts more easily than hybrid tea and remontant roses.

Card 1/1

USSR/Cultivated Plants. Decorative Plants.

M

Abs Jour : Ref Zhur-Biol., No 15, 1958, 68409

Author : Koval, A. A.

Inst : -

Title : Polyantha Roses.

Orig Pub : Sad i ogorod, 1957, No 9, 64-68

Abstract : The characteristic qualities of polyantha and hybrid polyantha roses are indicated. The latter species of roses are obtained by crossing polyantha roses with tea-roses and tea-roses hybrid strains. A detailed description is presented of the methods and techniques which are used for reproducing roses through grafting and scioning as well as for caring for bud-grafted plants and scions both before and after they take roots.

Card : 1/2

KOLESNIKOV, Venedikt Andreyevich, prof., doktor sel'skokhoz.nauk; ZHURAV, Aleksy Borisovich, agronom; KAPTSINEL', Mikhail Abramovich, agronom; KAPTSINEL', Anna Petrovna, agronom; KOVAL', Alla Alekseyevna, kand.sel'skokhoz.nauk; KORCHAGIN, Vladimir Nikolsyevich, entomolog; ZUBAREV, N.A.; LUR'YE, B.D., red.; RAZGULYAYEVA, N.G., tekhn.red.

[Amateur fruitgrower's reference manual] Kalendar"-spravochnik sadovoda-liubitelia. Moskva, Izd-vo M-vs sel'.khov.SSSR, 1959. 494 p. (MIRA 13)

(Fruit culture)

ZVYAGINTSEV, A.F.; IVANOV, Yu.N.; KAZAKOV, V.E.; STETSENKO, A.M.;  
SOLOMOVICH, M.Ya.; KORZH, V.I.; DASHKEVICH, A.A.; Primali  
uchastnye: LIPTSEN, S.Kh.; RYZHIKOV, A.P.; STAL'NOKRITSKIY,  
V.N.; LEVENETS, L.Ye.; MOGILA, V.A.; KOVAL', A.A.; VLASOV, V.F.  
ROSHCHIN, A.G.; RAYKO, V.P.; KORNIYENKO, V.G.; PANTYUSHKIN, N.V.

Investigating the possibility of manufacturing all-rolled  
electric locomotive wheels with existing equipment. Kuz.-shtam.  
proizv. 5 no.11:11-14 N '63.

(MIRA 17:1)

L 11838-66, ENT(m)/EWA(h)

ACC NO: AP5028025

SOURCE CODE: UR/0368/65/002/008/0402/106

AUTHOR: Koval', A. A.; Kopanets, Ye. G.; Korda, Yu. S.; Sukhotin, L. N. (Voronezh State University); Tsytko, S. P.

ORG: none

TITLE: Excitation function of the reaction  $S^{36}(p)Cl^{37}$  in the interval  $E_p = 1.4 - 2.1$  Mev

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 8, 1965, 402-406

TOPIC TAGS: sulfur, chlorine, excitation spectrum

ABSTRACT: To obtain new experimental data on the excited states of  $Cl^{37}$ , which are quite scanty, the authors attempted to use the hitherto unobserved radiative proton capture reaction  $S^{36}(p)Cl^{37}$ , in which the energy release is  $Q_m = 8.401 \pm 0.009$  Mev. A thin isotopic  $S^{36}$  target sufficiently enriched to make radiative capture of a proton by  $S^{36}$  observable, was prepared in an electromagnetic separator by knocking  $S^{36}$  ions into a tantalum base. The method of preparing such targets was described by M. I. Guseva (PTE, No. 5, 112, 1952). The target was approximately 3 kev thick at a proton energy on the order of 2 Mev. The proton source was the 0-Mev electrostatic accelerator of the Physicotechnical Institute of the Ukrainian Academy of Sciences. The proton current to the target amounted to 8--10  $\mu$ a during the course of the experiment, and was monitored with a current integrator. The monitor was a 70 x 50 mm NaI(Tl).

Card 1/2

L 11638-66

ACC NR: AP5028025

crystal. The excitation function of the reaction  $g^{36}(p\gamma)Cl^{37}$  was measured in the incoming-proton energy interval 1.4--2.1 Mev at  $90^\circ$  to the proton beam. It is deduced from the measurements that the resonances observed correspond to the  $Cl^{37}$  resonance levels produced in the reaction  $g^{36}(p\gamma)Cl^{37}$ . The positions of the resonance and the corresponding excitation energies of the  $Cl^{37}$  nucleus are tabulated. Authors thank M. I. Guseva for preparing the isotopic  $g^{36}$  target, Yu. A. Kharchenko for operation of the accelerator, and I. P. Kolodnyy and I. M. Bessalov for help with the measurements. Orig. art. has: 1 figure and 1 table.

SUB COM: 20/ 07/ SUBM DATE: 07Sep65/ ORIG REF: 003/ OTH REF: 005

HW  
Cont 2/2

40722

S/125/62/000/009/000/008  
A006/A101

1,2310

AUTHORS: Gavrish, V. S. & Koval', A. B.

TITLE: Welding electron-gun modulator

PERIODICAL: Avtomaticheskaya svarka, no. 9, 1962, 87 - 88

TEXT: At the Institute of Electric Welding imeni Ye. O. Paton a laboratory model of a modulator has been developed which makes it possible to set up separately 0.1 - 8 msec pulses and pauses; to control the electron beam current during the welding process, and to vary the full stop time of the gun within 0.5 - 4 sec after the stop signal arrival. A block-diagram of the modulator is given (Figure 1). Initially the output stage tube is cut-off by negative voltage  $U_{sm}$ ; its anode voltage is applied to the "cathode-control electrode" system of the welding gun and cuts off the projector. When the "start" signal enters electron key 4, the amplifier switch is operated. Sinusoidal voltage is supplied to the transformer "Tr 1:1" from whose secondary winding the rectified voltage enters the output stage. The electron beam can be controlled by changing the voltage  $U_{contr}$ . Entering electron key 3, the cut-off signal operates simultaneously.

Card 1/3

Welding electron-gun modulator.

S/125/62/000/009/007 008

A006/A101

timing device which supplies to key 6 the voltage  $U_{\text{out-off}} = U_k (1 - e^{-\frac{t}{T}})$ , where  $T = R_k C_p$ .  $U_{\text{out-off}}$  can be regulated by varying the capacitance  $C_p$ . At this point the welding cycle is completed and the modulator returns to its initial state. There are 2 figures.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. Patona AN USSR (Order of the Red Banner of Labor Institute of Electric Welding imeni Ye. O. Paton, AS UkrSSR)

SUBMITTED: March 23, 1962

IX

Card 2/3

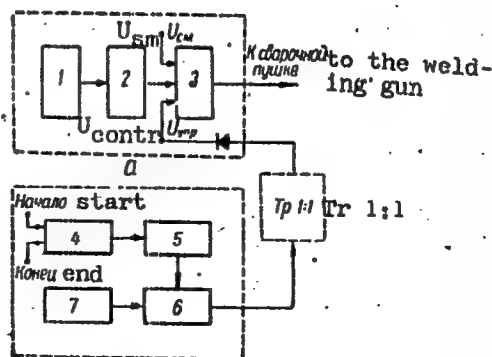
Welding electron-gun modulator

S/125/62/000/009/007 008

A006/A101

Figure 1.

Legend: a) High-voltage unit:  
1 - rectangular pulse generator;  
2 - pulse amplifier-limiter;  
3 - output stage; b) low-voltage unit:  
4 - electron key; 5 - sawtooth-voltage generator;  
6 - amplifying switch; 7 - sinusoidal voltage generator.



IX

Card 3/3



KOVAL', A.B.

Device for the automatic disconnection of the anode current  
of an electron gun ~~during~~ the development of an arc discharge.  
Atom. svar. 16 no.1:84-86 Ja '63. (MIRA 16:2)

1. Institut elektrosvariki imeni Ye.O. Patona AN UkrSSR.  
(Electric welding—Equipment and supplies)  
(Electron beams)

KOVAL, A. B.  
AID Nr. 993-8 21 June

# CONFERENCE ON AUTOMATIC CONTROL OF WELDING PROCESSES (USSR)

Avtomaticheskaya svarka, no. 4, Apr 1963, 95-96.

S/125/63/000/004/011/011

At a conference held on 27-28 December 1962 under the auspices of the Electric Welding Institute, Ukrainian Academy of Sciences, numerous papers were delivered reporting on results of research in the field of automatic control of welding processes. Academician B. Ye. Paton reported on achievements in the research and development of new automatic control systems for arc, electroslag, resistance, and electron-beam welding, giving particular attention to program and cybernetic systems. M. P. Zaytsev's report dealt with contactless ferro-transistor control systems for resistance welders. Engineer P. L. Chuloshnikov spoke on instruments for measuring resistance-welding parameters, as well as on control devices and resistance welders for light alloys. Engineers A. P. Obolonskiy and A. B. Koval' presented papers on automatic-control systems for electron-beam welding. Engineer R. M. Shirokovskiy discussed automatic guiding of the electrode along the joint in welding gas pipes.

[WB]

Card 1, 1

I. 5026-66 EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) JD/HM

ACC NR: AP5024429

SOURCE CODE: UR/0286/65/000/015/0139/0139

INVENTOR: Podola, N. V.; Salan, V. I.; Koval', A. B.

TITLE: Method of stabilizing the focal spot in electron-beam welders. Class 49, No. 173587 [announced by Electric Welding

Institute im. Ye. O. Paton, AN UkrSSR (Institut electrosvarki AN UkrSSR)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 139

TOPIC TAGS: welding, electron beam welding, electron beam, beam focal spot, focus spot stabilization

ABSTRACT: This Author Certificate introduces a method of stabilizing the focal spot in electron-beam welders with the focusing system receiving power from the network through a rectifier and a magnetic amplifier with the network-voltage and accelerating-voltage feedback. To improve stabilization, a correcting signal proportional to the changes in accelerating voltage is fed continuously to the focusing system.

SUB CODE: IE/ SUBM DATE: 23Nov63/ ORIG REF: 000/ OTH REF: 000

ATD PRESS: 4132

Card 1/1

UDC: 621.3.032.269.2:621.791.72

090101.7

L 21177-66 EWT(d)/EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(l) JD/RM  
 ACC NR: AP6007921 (N) SOURCE CODE: UR/0125/66/000/002/009/0071  
 AUTHOR: Koval', A. B.; Chalov, V. I. 3  
 ORG: Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektr-  
 svarki AN UkrSSR) 12  
 TITLE: System for controlling the motion of the electron beam in welding electron  
 guns 14 18  
 SOURCE: Avtomaticheskaya svarka, no. 2, 1966, 69-71  
 TOPIC TAGS: electron beam welding, electron beam motion, electron beam welder, motion  
 control  
 ABSTRACT: A device for automatic control of the beam motion in electron-beam welders  
 has been developed. The device employs two electromagnetic fields perpendicular  
 to each other, both of which are time functions of the same frequency. In a general  
 case, the focal point of the beam travels along an ellipse with axes whose length  
 are determined by the current in magnetic coils. When current is the same in both  
 coils, the ellipse becomes a circle. The device is especially effective in welding  
 circular or elliptic joints in the horizontal plane, such as occur in joining tubes  
 to the tube plate. It eliminates the need for complicated positioning and rotating  
 attachments and greatly simplifies the design of electron-beam welders. Orig. ar.  
 has: 4 figures. [v]  
 SUB CODE: 13 SUBM DATE: 08Feb65/ ATD PRESS: 422 14  
 Card 1/1 BK UDC: 621.791.85

KOVAL', A.F.

Resistance to Swedish fly of corn samples differing in their  
cold tolerance. Agrobiologiya no.1:147-149 Ja-F '64  
(MIRA 17:8)

1. Chernovitskiy universitet, biologicheskiy fakul'tet.

I 29383-66 EWT(m)/EWF(t)/ETI IJP(c) JD/HM/WB

ACC NR: AP6016586 (N) SOURCE CODE: UR/0129/66/000/005/0020/002

AUTHOR: Gayduk, V. V.; Koval', A. D.; Natapov, B. S.

ORG: Zaporozh Machine-Building Institute (Zaporozhskiy mashinostroitel'nyy institut)

TITLE: The structure and properties of heat-resistant ZhS-type nickel alloy on cooling

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 5, 1966, 20-22 and insert facing p. 33

TOPIC TAGS: nickel alloy, heat resistant alloy, alloy heat treatment, alloy rupture life, alloy structure, chromium containing alloy, tungsten containing alloy, molybdenum containing alloy, aluminum containing alloy, titanium containing alloy

ABSTRACT: The effect of annealing temperature on the structure and properties of ZhS-type nickel-base alloy (0.1%Zr, 16.2%Cu, 4.9%W, 4.4%Mn, 4%Fe, 2.9%Al, 2.4%Ti, 0.4%Si, 0.5%Mn, 0.02%B, 0.015%Ca) has been investigated. The alloy specimens were annealed at 1000—1300C for 4 hr and air cooled. It was found that with increasing annealing temperature, the notch toughness and the rupture life increase and reach a maximum with annealing at 1200C. The rupture life at 950C under a stress of

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UDC: 620.18:669.14.018.45

I 29383-66

"APPROVED FOR RELEASE: 06/14/2000

CIA-RDP86-00513R000825510012-7"

12.5 kg/mm<sup>2</sup> was found to be 160 hr and the room temperature notch toughness, 6.5 mkg/cm<sup>2</sup>. The most stable structure and best combination of properties were achieved by annealing at 1200C followed by aging. The danger of oxidation makes it necessary, however, to use greater machining allowances: not less than 0.3 mm. At smaller allowances the annealing has to be performed in a protective atmosphere, in a salt bath, or at lower temperature. Orig. art. has: 3 figures. [WW]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 006/ ATD PRESS: 5008

Card 2/2 CC

KOVAL, A.G.

SPIVAK, M.S., glavnyy redaktor; BULOZUB, V.G., redaktor; VASILENKO, P.M., redaktor; ZORIN, I.G., redaktor; IL'CHENKO, I.K., redaktor; KOVAL, A.G., redaktor; KRYLOV, A.F., redaktor; PUKHAL'SKIY, A.V., redaktor; SIDORANKO, A.P., redaktor; RADCHENKO, A.N., redaktor; ANGELINA, P.N., redaktor; BUZANOV, I.P., redaktor; BOYKO, D.V., redaktor; BURKATSKAYA, G.Ye., redaktor; VASILENKO, A.A., redaktor; VLASYUK, P.A., redaktor; GORODNIY, N.G., redaktor; DEMIDENKO, T.T., redaktor; DUBKOVETSKIY, F.I., redaktor; KIRICHENKO, P.G., redaktor; LITOVCHENKO, G.P., redaktor; OZERNYY, M.Ye., redaktor; PERSHIN, P.N., redaktor; POPOV, P.A., redaktor; POSMITNYY, M.A., redaktor; PSHENICHNYY, P.D., redaktor; RADCHENKO, B.P., redaktor; ROMANENKO, I.N., redaktor; RUBIN, S.S., redaktor; SAVCHENKO, M.Kh., redaktor; SOMOLOVSKIY, A.M., redaktor; TSYBENKO, K.Ye., redaktor; KOVAL'SKIY, V.F., tekhnicheskii redaktor

[Practical collective farm encyclopedia] Kolkhoznaya proizvodstvennaya entsiklopediya. Izd. 2-oe, ispr. 1 dop. Kiev, Gos. izd-vo sel'khoz. lit-ry. USSR. Vol. 1. Abrikos - liutserna. 1956. 688 p. (MLRA 10:9)  
(Agriculture--Dictionaries)

*Koval, A.G.*

SPIVAK, M.S., glavnyy red.; BILIZUB, V.G., red.; VASILENKO, P.M., red.;  
 ZOKIN, I.G., red.; IL'CHENKO, I.K., red.; KOVAL', A.G., red.;  
 KRYLOV, A.F., red.; PUKHAL'SKIY, A.V., red.; SIDORENKO, A.P.,  
 red.; FEDCHENKO, A.N., red.; ANGELINA, P.N., red.; BUZANOV, I.F.,  
 red.; BOYKO, D.V., red.; BURKATSKAYA, G.Ye., red.; VASILENKO, A.A.,  
 red.; VIASYUK, P.A., red.; GORODNIY, N.G., red.; DEMIDENKO, T.T.,  
 red.; DUBKOVETSKIY, P.J., red.; KIRICHENKO, F.G., red.; LITOVCHENKO,  
 G.P., red.; OZERNYY, M.Ye., red.; PERSHIN, P.N., red.; POPOV, F.A.,  
 red.; POSMIRNYY, M.A., red.; PSHENICHNIY, P.D., red.; RADCHENKO,  
 B.P., red.; ROMANENKO, I.N., red.; RUBIN, S.S., red.; SAVCHENKO,  
 M.Kh., red.; SOKOLOVSKIY, A.N., red.; TSYBENKO, K.Ye., red.;  
 KOVAL'SKIY, V.F., tekhn.red.

[Practical collective farm encyclopedia] Kolkhoznaya proizvodstven-  
 naya entsiklopediya. Izd. 2-oe, perer. i dop. Kiev, Gos. izd-vo  
 sel'khoz. lit-ry USSR. Vol.2. Malina-Iashchur. 1957. 923 p.  
 (Agriculture--Dictionaries) (MIRA 11:4)



KOVAL', A.G.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1617  
 AUTHOR FOGEL', JA.M., MITIN, R.V., KOVAL', A.G.  
 TITLE The Study of the Capturing Processes of Two Electrons on the Occasion of Collisions of Positive Carbon- and Oxygen Ions with Gas Molecules.  
 PERIODICAL Zhurn. eksp. i. teor. fis, 31, fasc.3, 397 - 404 (1956)  
 Issued: 12 / 1956

The present work measures the cross sections of the twofold charge exchange on the occasion of the passage of  $C_1^+$  - and  $O_1^+$  -ion bundles through Ne, He, A, Kr, Xe, H<sub>2</sub>, N<sub>2</sub>, and O<sub>2</sub>.

Apparatus and measuring method: These double charge exchange processes were investigated by means of a double mass spectrometer. The bundles of the  $C_1^+$  - and  $O_1^+$  - ions were produced by blowing oxygen gas through a bimetallic valve into a high frequency ion source. The bundle of the  $C_1^+$  - and  $O_1^+$  - ions also contained considerable quantities of  $CO^+$  - and  $CO_2^+$  - ions as well as small quantities of  $H_1^+$ ,  $H_2^+$ ,  $H_3^+$ ,  $N_1^+$  - ions.

Discussion of measuring results: The aforementioned cross sections of the twofold charge exchange were investigated within the energy interval of from 10,7 to 54,5 keV. The results obtained are illustrated by two diagrams. Within the energy interval investigated the cross section  $\sigma_{1-1}$  of the capture of two electrons by  $C_1^+$  - ions in He, Ne, A, Xe, H<sub>2</sub> and N<sub>2</sub> as well as by  $O_1^+$  - ions in He, Ne, and N<sub>2</sub> increases monotonously with increasing ion energy. The velocity of the increase of  $\sigma_{1-1}$  on this occasion diminishes with increasing ion energy, which is indicative of an approximation towards a maximum. For  $O_1^+$  - ions in A, Kr, H<sub>2</sub>, O<sub>2</sub> the cross

Two electron capture process in collisions between gamma  
and positive ions and gas molecules. Ya. M. Gore  
R. V. Miron, and A. G. Rozen, *Soviet Phys. JETP*  
38:34(1974) (English translation) — See C.A. 51, 41205  
E. M. R.

phys

5

for  
orig

*KOVAL', A.G.*

AUTHOR:

FOGEL', Ya.M., KRUPNIK, L.I., KOVAL', A.G.,  
SLABOSPITSKIY, R.P.

PA - 3552

TITLE:

Composition of Equilibrium Beam, Formed by Passage of Single  
Positive Oxygen Ions through the Gas Targets. (Sostav ravnovesnogo  
puchka, obrazuyushchegosya pri prokhozhenii odnozaryadnykh  
polozhitel'nykh ionov kisloroda cherez gazovyye misheni, Russian)  
Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 5, pp 988 - 996 (U.S.S.R.)

PERIODICAL:

ABSTRACT:

The tests were carried out in order, by means of a recharge of  
positive ions, to obtain a bundle of negative oxygen ions. For this  
purpose the composition of an equilibrium oxygen bundle with an  
energy of 12.3 - 46.2 keV, which is formed during the passage  
of positive oxygen ions with a charge through a flowing gas target  
filled with Ne-, A-, H<sub>2</sub>-, N<sub>2</sub>-, and O<sub>2</sub> gases, is investigated.

There follows the description of the apparatus and of the measuring  
method. The quantities  $f^0$ ,  $f^+$ ,  $f^-$  (relative content of positive  
and negative ions with a charge in the bundle) for an  
equilibrium oxygen bundle with an energy in the above interval in  
the above mentioned gases were investigated. It is shown that in  
the energy interval investigated no great dependence of bundle  
composition on energy could be observed. However, the composition  
of the bundle depends in a high degree on the nature of the gas  
by which the target is filled. There is a particularly high content

Card 1/2

- Koval, A.G.

9(314)

PHASE I BOOK EXPLOITATION

SOV/2746

Akademiya nauk USSR. Fiziko-tekhnicheskiy institut

Elektrostaticheskiye generatory; sbornik statey (Electrostatic Generators; Collection of Articles) Moscow, Atomizdat, 1959. 255 p. 4,100 copies printed.

Ed. (Title page): A. K. Val'ter, Member, Academy of Sciences, USSR; Ed. (Inside book): Z. D. Andreyenko; Tech. Ed.: N. A. Vlasova.

PURPOSE: This collection of articles may be useful to scientists and engineers working with high-voltage electrostatic generators.

COVERAGE: The authors discuss the construction and operation of a number of electrostatic generators developed in the USSR and describe methods of generating negative hydrogen ions. They discuss the operation of accelerating tubes and present methods of stabilizing accelerator voltages. No personalities are mentioned. References appear at the end of some articles.

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(German.)

APPROVED FOR RELEASE: 06/14/2000

Tsygikalo, A. A. Testing of Accelerating Tubes for New Electrostatic Accelerator Developed by FTI AN UkrSSR

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CIA-RDP86-00513R000825510012-7

Electrostatic Generators (Cont.)

SOV/2746

generators and describe the construction of a magnetic ion source with a cold cathode and a high-frequency source. They also discuss the experimental study of these sources conducted by FTI AN UkrSSR and describe the experimental results. There are 29 references: 9 Soviet, 18 English and 2 German.

Fogel', Ya. M., L. I. Krupnik, A. G. Koval' and A. D. Timofeyev. Source of Negative Hydrogen Ions for an Overcharging Electrostatic Generator. The authors describe the construction and operation of three models of negative hydrogen-ion sources developed by FTI AN UkrSSR and present the analysis of their characteristics. The first and the second models were developed in 1955 and 1956 respectively. The third model, built later, is essentially a copy of that developed by Weinman, J. A., and Cameron, J. K., of the University of Wisconsin, U. S. A. In the analysis of characteristics of these models the authors discuss the negative ion spectrum, methods of determining the coefficient of transformation of positive ions into negative, focusing of ion beams, and loss of ion energy. There are 9 references: 3 Soviet, 4 English and 2 German.

141

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83711

S/056/60/038/004/007/048  
B019/B0709.9130  
21.2120  
AUTHORS:Fogel', Ya. M., Koval', A. G., Levchenko, Yu. Z.

TITLE:

Ionization of Gases by Negative Ions

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 38, No. 4, pp. 1053-1060

TEXT: The authors have determined the total production cross sections of positive ions for the collision of  $H^-$ -ions of energies 10-50 kev with He-, Ne, Ar-, Kr-, and Xe atoms and  $H_2^-$ ,  $N_2^-$ , and  $O_2$  molecules; and for the collision of  $O^-$  ions of energies 10-50 kev with atoms of inert gases and  $H_2^-$  and  $O_2$  molecules. The source of the negative ions was the injector (Fig. 1) of the charge exchange electrostatic accelerator which is being constructed at FTI AN USSR (Institute of Physics and Technology of the AS UkrSSR). Some of the extensive experimental material is reproduced diagrammatically in Figs. 2, 3, and 4. It is concluded from a discussion of the results that  $H^+$ -,  $H^-$ -, and  $D^-$  particles have almost the same ionization cross section inspite of differences in the charge, mass, and

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Ionization of Gases by Negative Ions

83714  
S/056/60/038/004/007/048  
B019/B070

the structure of the electron shells. The difference between the cross sections of  $H^-$  and  $O^-$  ions in the energy range investigated is explained as being due to the lower velocity of the  $O^-$  ions in that range. It is concluded further that for equal velocities  $O^-$  has a larger production cross section for positive ions than  $H^-$  has. This is in agreement with the hypothesis according to which the cross section of the transition of electrons in the state of continuous spectrum increases with the increase in the number of electrons in the electron shells of the colliding particles. An investigation of the charge spectrum of slow ions, and the determination of ionization cross section with removal of one, two, and three electrons is briefly mentioned. N. V. Fedorenko is mentioned. Professor A. K. Val'ter is thanked for his constant interest; L.P. Rekova and A. F. Khodyachikh for collaboration in measurements; and P.A. Chudnyy, the mechanic, for setting up the collision chamber. There are 4 figures and 20 references: 10 Soviet, 5 US, and 2 British.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR  
(Institute of Physics and Technology of the Academy of  
Sciences, UkrSSR)

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Ionization of Gases by Negative Ions

83711

S/056/60/038/004/007/048  
B019/B070

SUBMITTED: September 29, 1959

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83759

S/056/60/039/003/004/045  
B004/B060

26.1420

AUTHORS: Fogel', Ya. M., Koval', A. G., Levchenko, Yu. Z.,  
Khodyachikh, A. F.

TITLE: Composition of the Slow Ions<sup>1</sup> Arising on the Ionization<sup>2</sup> of  
Gases by Means of Negative Ions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 39, No. 3 (9), pp. 548-555

TEXT: By way of introduction, the authors discuss the difference  
existing between ionization by means of positive ions and ionization by  
negative ions, and then report on their measurements of the ionization  
cross section of He, Ne, Ar, Kr, X, H<sub>2</sub>, N<sub>2</sub>, and O<sub>2</sub> by means of H<sup>-</sup> and O<sup>-</sup>  
ions with a 10 - 50 kev energy. The analyzer of the charges of slow ions  
is described in great detail (Fig. 1). The analysis was made by means of  
a magnetic mass spectrometer with a field strength of 6000 oersteds. The  
current on the beam catcher was measured by means of an ЭМУ-3 (EMU-3)  
tube electrometer. Experiments were carried out at (1-1.5)·10<sup>-4</sup> torr.

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Composition of the Slow Ions Arising on the  
Ionization of Gases by Means of Negative Ions

S/056/60/039/003/004/045  
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The ionization cross section  $\sigma_{On}^i$  in the removal of  $n$  electrons was calculated by the equation:  $\sigma_{On}^i = \alpha_n \sigma^+ / n$ ;  $\alpha_n$  and  $\sigma^+$  were measured (1).  $\alpha_n$  is the relative intensity of the spectral line corresponding to the  $n$ -foldly charged ion;  $\sigma^+$  is equal to  $\sum_{n=1}^Z n \sigma_{On}^i$ .

Figs. 2-6 show  $\sigma_{On}^i$  for X, Kr, Ar, and Ne, Figs. 8-10 for  $H_2$ ,  $O_2$  and  $N_2$  as a function of the velocity  $v$  of  $H^-$  and  $O^-$  ions. With increasing multiplicity of ionization, i.e. with increasing sum of the ionization potentials,  $(\sigma_{On}^i)_{\max}$  drops rapidly (Fig. 7). The following results are given: 1) At equal velocity of the initial ions, the ionization cross section is larger for  $O^-$  ions than for  $H^-$  ions both in molecular and in atomic gases. 2) Both in atomic and molecular gases, the cross section increases with rising atomic number. 3) With the exception of the pair  $O^- - O_2$ , the cross section of the formation of singly-charged molecular ions is larger than the cross section of singly-charged atomic ions.

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Composition of the Slow Ions Arising on the  
Ionization of Gases by Means of Negative Ions

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The cross section for the formation of doubly-charged ions is considerably smaller than that for singly-charged ions. 4) The cross section of the formation of singly-charged molecular ions is little dependent on the type of gas, while the cross section for the formation of  $H^+$  is considerably smaller than that for  $N^+$  and  $O^+$ . In Figs. 4 (Ar), 8 ( $H_2$ ), 9 ( $N_2$ ), 10 ( $O_2$ ), the cross sections of the formation of slow ions by  $H^-$  are compared with the cross sections of ionization by protons indicated in Ref. 5. Fig. 11 gives a comparison of the cross section of ionization of  $H_2$  by H atoms with that by  $H^-$  ions. The effect of the excess electron in  $H^-$  on the ionization of the  $H_2$  molecule is but slight. The authors thank Professor N. V. Fedorenko and V. V. Afrosimov for their advice, and Professor A. K. Val'ter for interest displayed in the work. There are 11 figures and 8 references: 7 Soviet and 1 German.

ASSOCIATION: Fiziko-tekhnicheskii institut AN Ukrainskoy SSR (Institute of Physics and Technology of the AS of the Ukrainskaya SSR)

SUBMITTED: April 9, 1960

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07120

S/056/61/040/001/003/037  
B102/B204

26.23/2

AUTHORS: Fogel', Ya. M., Koval', A. G., Levchenko, Yu. Z.

TITLE: Production of slow negative ions in single collisions between fast negative hydrogen and oxygen ions and gas molecules

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no.1, 1961, 13-22

TEXT: In order to obtain new data on the mechanisms underlying the production of slow negative ions in interaction between fast negative ions with gas molecules, the production cross sections of negative ions in collisions of  $H^-$  and  $O^-$  ions with energies of 10-50 keV with  $O_2$ ,  $CCl_4$ , and  $SF_6$  molecules were measured and the negative and positive ions produced in the gas were determined by mass spectroscopy. The experimental arrangement used has already been described in previous papers (Refs. 2, 3). The ion production cross section  $\sigma_i$  was measured by means of the well-known potential method. First,  $i_H^-/I_0^- = f(H)$  and  $i_H^-/I_0^- = f(V)$  were measured, where  $i_H^-$  is the negative current on the measuring electrode in the presence of a magnetic field, and  $I_0^-$  is the current of the initial beam. Thus,  $\sigma_i = i_H^-/I_0^- nL$  could be

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S/056/61/040/001/003/037  
B102/B204

Production of slow negative ...

determined, where  $n$  is the number of gas molecules per  $\text{cm}^3$  and  $L$  is the length of the measuring electrode. Also the characteristics  $i_H^-/I_0^- = f(p)$  were recorded, as well as  $I_n^-/I_0^- = f(p)$ , where  $I_n^-$  is the current in the maximum of a given mass spectral line. For the pair  $H^- - O_2$ ,  $\sigma_1^-$  was measured as amounting to  $(1-3) \cdot 10^{-17} \text{ cm}^2$ , for the pair  $O^- - O_2$ ,  $\sigma_1^-$  was higher by one order of magnitude. It was further found that  $\sigma_1^-$  is independent of the ion mass, and that  $\sigma_1^-$  decreases with increasing ion velocity, according to the formula  $\sigma_1^- = \sigma_0 e^{-kv}$ . It was mass-spectroscopically established that on oxygen, above all the process  $A^- + O_2 \rightarrow A + O_2^-$  takes place, the formation of excited  $O_2^-$  or  $O^- + O^+$  was little probable. For the pair  $H^- - CCl_4$ ,  $\sigma_1^-$  turned out to be practically constant within the entire velocity range studied, for the pair  $O^- - CCl_4$ ,  $\sigma_1^-$  decreases with increasing ion velocity according to the same formula as has been found for oxygen. The most probable process for the pair  $O^- - CCl_4$  appears to be that an excited molecule

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Production of slow negative ...

ion is formed, which decays according to the scheme  $\text{CCl}_4^{*-} \rightarrow \text{Cl}^- + \text{CCl}_3$ , and for the pair  $\text{H}^- - \text{CCl}_4$  a simple dissociation:  $\text{CCl}_4 \rightarrow \text{Cl}^- + \text{CCl}_3^+$ . The processes  $\text{CCl}_4^{*-} \rightarrow \text{CCl}_3^- + \text{Cl}$  and  $\text{CCl}_4 \rightarrow \text{CCl}_3^- + \text{Cl}^+$  respectively are of low probability. The  $\sigma_1^-$  values of the processes  $\text{H}^- + \text{SF}_6$  and  $\text{O}^- + \text{SF}_6$  were only to a low degree dependent on the initial ion velocity. In the charge exchange reaction  $\text{O}^- + \text{SF}_6$  above all  $\text{F}^-$  ions were formed (according to the reaction  $\text{SF}_6^- \rightarrow \text{SF}_5 + \text{F}^-$ ), and only few  $\text{SF}_5^-$  ions according to  $\text{SF}_6^- \rightarrow \text{SF}_5^- + \text{F}$ . Furthermore, the spectra of negative ions, formed in collisions between  $\text{H}^-$  and  $\text{O}^-$  with Freon molecules ( $\text{CCl}_2\text{F}_2$ ) were studied, where in the spectrum, besides  $\text{F}^-$ ,  $\text{Cl}^-$ , and  $\text{C}^-$ , also about 50%  $\text{H}^-$  ions occurred.  $\sigma_1^-$  was about  $2.5 \cdot 10^{-18} \text{ cm}^2$  for  $\text{H}^- - \text{CCl}_2\text{F}_2$  pairs, i.e., 1/25 of the value for  $\text{H}^- - \text{CCl}_4$ . Furthermore, collisions between  $\text{H}^-$  and  $\text{O}^-$  on the one hand, and  $\text{CO}$ ,  $\text{CO}_2$ ,  $\text{H}_2\text{O}$ ,  $\text{NO}$ , and  $\text{NH}_3$  on the other hand were studied. In the reaction  $\text{O}^- + \text{H}_2\text{O}$ , 58%  $\text{H}^-$

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Production of slow negative ...

and 42%  $O^-$  could be found in the spectrum, i.e., the two decay reactions.  $H_2O^- \rightarrow H^- + OH$  and  $H_2O^- \rightarrow O^- + H_2$  occurred with nearly the same probabilities. In the reaction  $O^- - CO_2$ , 85%  $O^-$  and only 15%  $O_2^-$  ions could be observed, i.e., the process  $CO_2^- \rightarrow C + O_2^-$  was much more improbable than  $CO_2^- \rightarrow CO + O^-$ . For all reactions studied, the electron "adhesion" reactions were compared. It was shown that both  $\sigma_1^-$  and the curves  $\sigma_1^-(v)$  for processes of free electron adhesion to molecules differ essentially from the charge exchange processes between negative ions and the same molecules. This is due to the fact that in the first case a free electron is added, i.e., the curve  $\sigma_1^-(v)$  has resonance character, in the latter case, however, the electron goes over from a discrete state (in the ion) to another discrete state (in the molecule). The authors thank A. F. Khodyachikh for taking part in the measurements, and Professor A. K. Val'ter for his interest in the work. M. N. Il'in, V. V. Afrosimov, N. V. Fedorenko, and N. S. Buchel'nikova are mentioned. There are 4 figures, 1 table, and 21 references: 8 Soviet-bloc and 13 non-Soviet-bloc.

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Production of slow negative ...

S/056/61/040/001/003/037  
B102/B204

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukraineskoy SSR  
(Institute of Physics and Technology of the Academy of  
Sciences Ukrainskaya SSR)

SUBMITTED: June 27, 1960

Legend to the table: 1) Secondary ion, 2) Particle of the primary beam,  
3) Secondary ion, 4) Particle of the primary beam, 5) Secondary ion,  
6) Particle of the primary beam.

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Production of slow negative ...

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CCl <sub>2</sub>				S <sup>+</sup>				CCl <sub>2</sub> F <sub>2</sub>			
1 Вторичный ион	Частица первичного пучка 2			Вторичный ион 3	Частица первичного пучка 4			Вторичный ион 5	Частица первичного пучка 6		
	O <sup>-</sup>	H <sup>-</sup>	e		O <sup>-</sup>	H <sup>-</sup>	e		O <sup>-</sup>	H <sup>-</sup>	e
Cl <sup>+</sup>	2	0,34	—	F <sup>+</sup>	16,2	1,93	—	C <sup>+</sup>	0,17	—	—
Cl <sup>+</sup>	38,3	28	14,1	S <sup>+</sup>	21	3,4	—	F <sup>+</sup>	0,02	—	—
CCl <sub>2</sub> <sup>+</sup>	—	—	0,4	SF <sub>2</sub> <sup>+</sup>	13,4	5,24	—	C <sup>+</sup>	6,9	4,05	4,9
CCl <sub>2</sub> <sup>+</sup>	9,2	12,5	12	SF <sub>2</sub> <sup>+</sup>	7,1	3,47	—	F <sup>+</sup>	7,5	4,18	0,65
CCl <sub>2</sub> <sup>+</sup>	18,3	15	14,2	SF <sub>2</sub> <sup>+</sup>	8,5	16,8	—	CCl <sub>2</sub> <sup>+</sup>	0,8	0,7	—
CCl <sub>2</sub> <sup>+</sup>	—	—	0,8	SF <sub>2</sub> <sup>+</sup>	2,5	5,43	—	CF <sup>+</sup>	14,3	17,2	10,8
Cl <sub>3</sub> <sup>+</sup>	1,0	1,28	0,18	SF <sub>2</sub> <sup>+</sup>	31,2	60,2	—	Cl <sup>+</sup>	20	18,35	10
CCl <sub>3</sub> <sup>+</sup>	23,5	38	51,3	SF <sub>2</sub> <sup>+</sup>	—	0,82	—	CCl <sub>2</sub> F <sub>2</sub> <sup>+</sup>	—	—	0,48
CCl <sub>3</sub> <sup>+</sup>	0,05	0,09	0,01	SF <sub>2</sub> <sup>+</sup>	—	0,22	—	CCl <sub>2</sub> F <sub>2</sub> <sup>+</sup>	39,3	40,5	—
C <sup>+</sup>	7,1	3,8	7,4	SF <sub>2</sub> <sup>+</sup>	—	2,46	—	CCl <sub>2</sub> <sup>+</sup>	—	—	3,5
C <sup>+</sup>	0,13	0,28	0,01	SF <sub>2</sub> <sup>+</sup>	63	96,1	—	CF <sub>2</sub> <sup>+</sup>	—	—	8,1
Cl <sup>-</sup>	99,4	99,3	99,9	SF <sub>2</sub> <sup>-</sup>	3,5	3,9	—	CCl <sub>2</sub> F <sub>2</sub> <sup>+</sup>	—	—	0,4
CCl <sub>2</sub> <sup>-</sup>	0,08	0,18	0,005	F <sup>-</sup>	33,5	0,04	—	CCl <sub>2</sub> F <sub>2</sub> <sup>+</sup>	8,4	12,3	2,3
Cl <sub>3</sub> <sup>-</sup>	0,2	0,24	0,1					CCl <sub>2</sub> F <sub>2</sub> <sup>+</sup>	—	—	4,3
CCl <sub>3</sub> <sup>-</sup>	0,12	—	—					CCl <sub>2</sub> F <sub>2</sub> <sup>+</sup>	2,5	2,8	54
								F <sub>2</sub> <sup>+</sup>	—	—	0,21
								Cl <sub>2</sub> <sup>+</sup>	—	—	0,16
								CCl <sub>2</sub> F <sub>2</sub> <sup>+</sup>	0,4	—	0,16
								Cl <sub>2</sub> <sup>+</sup>	4	4,1	0,22
								Cl <sup>-</sup>	73,5	74,6	30,4
								Cl <sup>-</sup>	22,6	21,3	69,4

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\* Для ионов O<sup>-</sup> скорость  $\phi = 6 \cdot 10^8$  см/сек, для ионов H<sup>-</sup>  $\phi = 2,4 \cdot 10^8$  см/сек, а для электронов  $\phi = 5,18 \cdot 10^8$  см/сек

KOVAL', A.G.; CHENKAVSKIY, N.B.

Hemorrhage in the myocardium in direct heart massage.  
Sud.-med.ekspert. 7 no. 2:49-50 Ap-Je '64. (MIRA 17:7)

KOVAL', A.G.; KOPPE, V.T.; FOGEL', Ya.M.

Emission spectra of CO, CO<sub>2</sub> and NO excited by electrons with  
a 13 kev. energy. Astron. zhur. 43 no. 1:209-219 Ja-F '66  
(MIRA 19:2)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kego.  
Submitted August 9, 1965.

1. 22662-66 EMT(1)/ENT(m) WW/GW

ACC NR: AP6006787

SOURCE CODE: UR/0033/66/043/001/0209/0219

AUTHORS: Koval', A. G.; Koppe, V. T.; Fogel', Ya. M.

CRG: Kharkov State University im. A. M. Gor'kiy (Khar'kovskiy gos. universitet)

TITLE: Emission spectra of CO, CO<sub>2</sub>, and NO excited by electrons with energies of 13 kev

SOURCE: Astronomicheskii zhurnal, v. 43, no. 1, 1966, 209-219

TOPIC TAGS: emission spectrum, electron bombardment, electron beam, proton bombardment, carbon monoxide, carbon dioxide, nitrous oxide

ABSTRACT: This paper is a continuation of a study of emission spectra of N<sub>2</sub>, O<sub>2</sub>, and air excited by electrons with energies in the kev range. The experimental setup for the present work on CO, CO<sub>2</sub>, and NO was similar to that used in the previous work by the present authors (Kosmicheskii issledovaniya 4, No. 1, 1966).

The gas pressure in the emission chamber was (1-2) 10<sup>-2</sup> mm Hg, and the current of the beam was 1.5-2 ma. Emission spectra for the three indicated gases were obtained for excitation with electrons having energies of 13 kev. The

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UDC: 523.035

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ACC NR: AP6006787

spectrograms are reproduced and the lines are tabulated for each gas (119 for CO, 153 for CO<sub>2</sub>, and 43 for NO), with interpretations, relative intensities, and (for CO and CO<sub>2</sub>) comparison of intensities with proton excitation of 37 kev and with the night sky spectrum of Venus. The authors conclude from this work that there is substantial difference between spectra of the indicated gases during excitation in gaseous discharge and spectra from excitation by a beam of high-speed electrons. But there is a definite agreement of these spectra with spectra produced by proton excitation of the same gases. This work was carried out in close contact with the Institute of Physics of the Atmosphere AN SSSR, and the authors express sincere thanks to the scientists at this institute for useful discussions of the results. They also thank R. F. Limberg for help in the measurement. Orig. art. has: 3 figures and 3 tables.

SUB CODE: 20 SUBM DATE: 09Aug65/ ORIG REF: 005/ OTH REF: 012

Card 2/2

1. 40051-66 EWT(1)/FCC IJP(c) AT/GW

ACC NR: 1P6007737

SOURCE CODE: UR/0293/66/004/001/0074/0088

AUTHORS: Koval', A. G.; Koppe, V. T.; Fogal', Ya. M.

ORG: none

TITLE: Emission spectra of rarefied gas molecules, excited by fast electrons

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 1, 1966, 74-88

TOPIC TAGS: emission spectrum, nitrogen, oxygen, rarefied gas, electron beam, aurora, spectrograph, fast electron

ABSTRACT: The emission spectra of nitrogen was investigated in the visible spectra using a high energy electron beam with 0.1 to 20 kev energy. Similar tests were performed with oxygen but with a 13 kev electron gun. In the nitrogen experiments, the strongest lines were caused by the first negative system (ns) bands of molecular  $N_2^+$  followed by the weaker (by a factor of 2--3) first positive system (ps) of molecular nitrogen. The change in distribution of relative intensities of  $N_2$  1-ps,  $N_2$  2-ps, and  $N_2^+$  1-ns was also investigated. The relative intensities for 100 ev and 13 kev energies in nitrogen are given in tabular form. The relative intensities of these lines are also plotted as a function of the electron energies and show (in all cases) a sharp decrease as the electron energy is increased. The results are compared with 37 kev proton excitation studies of nitrogen and are found to show the same emission bands. Fundamentally, a similar type of emission lines is observed in

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UDC: 535.352+539.196.5

I. 40051-65

ACC NR: AP6007737

the auroral spectra as in these laboratory tests. The strongest lines in oxygen were those generated by the first negative bands of  $O_2^+$ . However, the laboratory emission spectra of oxygen differed considerably from the auroral spectra. Similar tests in air showed that the results were additive. It is concluded that kev electrons play a large role in auroral phenomena, however, slow electrons seem to play an equally strong role, and a large amount of oxygen dissociation exists in an auroral display. The authors express their gratitude to their scientific colleagues, of the Institute of Atmospheric Physics of the Academy of Sciences SSSR (Institut fiziki atmosfery AN SSSR), Yu. I. Gal'perin and N. N. Shefov, for taking an active part in evaluating and encouraging this investigation. The graduate student V. V. Pomerantzev of Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet) participated in the preparation of the spectrograms. Orig. art. has: 3 tables and 3 figures.

SUB CODE: 20, 04/

SUBM DATE: 10Jun65/

ORIG REF: 007/

OTH REF: 011

Card 2/2

ACC NR: AP6034241

(N)

SOURCE CODE: UR/0120/66/000/005/0211/0214

AUTHOR: Koval', A. G.; Braude, P. A.; Gutman, B. V.

ORG: Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet)

TITLE: Application of ion beams for the micromachining of thin metal film on a dielectric

SOURCE: Pribury i tekhnika eksperimenta, no. 5, 1966, 211-214

TOPIC TAGS: ion beam, ion beam focusing, thin film

ABSTRACT: Equipment for generating thin ion beams was designed, constructed, and tested on thin metal films deposited on insulating substrates. This process is specifically intended for the manufacture of microcircuits. Electron beam machining has the severe disadvantage of removing material due to heat generation, which results in modification of thin film properties, especially in multilayer devices of the type used in microcircuits. The ion beam removes material due to cathodic sputtering, without any substantial generation of heat. The application of ion beam machining techniques so far has been hindered by the difficulty of generating thin collimated beams about 0.05 mm in diameter. Figure 1 shows the new ion-beam generator designed to produce such beams. The final beam collimation is accomplished using two diaphragms which have ap-

UDC: 621.3.032.26:621.791.94

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ACC NR: AP034241

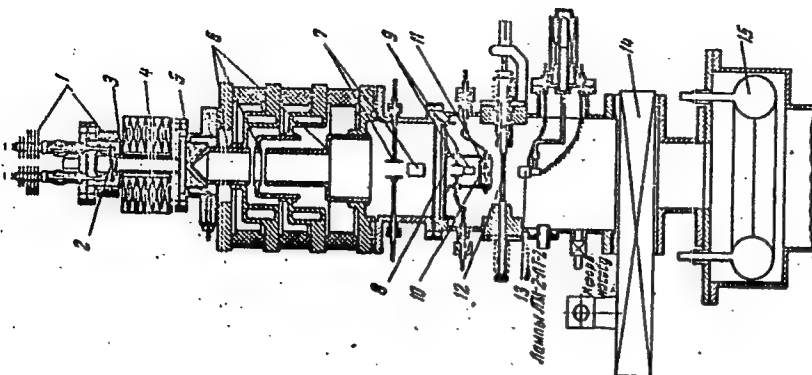


Fig. 1. 1--anode; 2--heated cathode; 3--radiators; 4--magnetic coil; 5--cold cathode with the emission aperture; 6--electrodes of the three-electrode lens; 7--first corrector; 8--first collimating diaphragm; 9--second corrector; 10--second collimating diaphragm; 11--plane condenser which steers the collimated beam; 12--movable sample stage; 13--Faraday cylinder; 14--vacuum valve; 15--nitrogen trap.

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ACC NR: AP6034241

pertures smaller than 0.1 mm, pierced with a ruby laser beam. The experiments involved beam current densities of 1 to 25 mA/cm<sup>2</sup>. Hydrogen, neon, argon, and nitrogen were used as gas sources of ions. The cathode is in the form of a magnetic arc. The same cathode was used with all gases. Experiments included material removal from Au, Cu, Al, Cr, Ta, and Ag films on dielectric substrates. It was shown that close control of these operations was possible with satisfactory results. The authors thank Ya. M. Fogel for his constant interest in this work and useful discussion. Gratitude to V. S. Ravin for a series of useful discussions is also expressed. Orig. art. has: 3 figures.

SUB CODE: 33, 20/

SUBM DATE: 02Oct65/

ORIG REF: 004/

OTH REF: 002

Card 3/3

KOVAL', A. I.

PA 51T73

1948	Mining Ore Deposits Mining Methods	Mar 1948
"Reserve Stores of Ore in Krivorozh," A. I. Koval', Bogr. Krivbasproyekt, 32 pp		
"Gorany Zhur" No 3		
Describes methods of establishing reserve piles of ore at the head of mines in Krivorozh including "Kom- munar," imeni Kirov, "B.L'shevik," No 10, and Kapital'naya, and discusses advantages of cone-shaped mounds.		
LC		51T73

KOVAL', A.I., inzh.; KOVALENKO, P.N., inzh.

Tower-type building over the mine "Gigant-Glubokaia."  
Shakht. stroi. 8 no.2:22-24 F '64. (MIRA 17:3)

1. Institut Krivbassproekt.

ROVANI, A. L.

Dissertation: "Pressed wood Pulp as a Material for Tie Plates of Street-Car Tracks."  
Cand Techn Sci, Moscow Forestry Engineering Institute, 23 Jun 54. (Vechernyaya Moskva,  
Moscow, 14 Jun 54)

SC: SUM 318, 23 Dec 1954

VIZIR', P.Ye. [Vizir, P.IE.]; KOVAL', A.M. [Koval', H.M.]

Sensitizing streptomycin-resistant bacteria with the aid of bacterial filtrates. Mikrobiol. zhur. 27 no.2:11-14 '65.

(MIRA 18:5)

1. Institut mikrobiologii i virusologii AN UkrSSR.

KOVAL', A.N.

Spectrophotometry of the chromosphere outburst of August 30, 1956,  
taken in hydrogen light. Astron. tsir. no.183:13-15 J1 '57.

(MIRA 11:3)

1. Kiyevskiy gosudarstvennyy universitet, kafedra astronomii.  
(Sun)

L 45843-66 EWT(1) GW

ACC NR AR6028402

SOURCE CODE: UR/0269/66/000/005/0051/0051

35

AUTHOR: Koval', A. N.

34

TITLE: Position of "whiskers" in a group of sunspots in relation to the magnetic field

B

SOURCE: Ref. zh. Astronomiya, Abs. 5.51.403

REF SOURCE: Izv. Krymsk. astrofiz. observ., v. 34, 1965, 278-287

TOPIC TAGS: sunspot, solar magnetic field, solar flare/BST magnetograph, whisker, penumbra

10

10

ABSTRACT: Ninety-two cases of observations of "whiskers" in a group of sunspots were compared as to their position in relation to the magnetic field, based on detailed visual measurements of the magnetic fields of sunspot groups. The comparison shows that "whiskers" mainly emerge at the boundary of the magnetic field  $H_{||} = 0$  polarities and at the edge of the penumbra of large spots in the area of transverse fields dissemination. The position of "whiskers" in relation to the magnetic field was studied with maps of longitudinal and transverse fields obtained with the BST magnetograph. The study confirms the conclusion

Card 1/2

UDC: 523.74+523.75



L 45848-66

ACC NR: AR6028402

of A. B. Severnyy that whiskers appear at points of contact of the crossing or branching out of fields of varying directions. Examination of  $H_{\alpha}$  - films of sun-spots groups, in which whiskers were observed, shows that points of whisker appearance are, in most cases, also points of increased flare brightness. The character of the luminescence of the line of metals in the whiskers was examined. This indicates that the whiskers are subjected to a selective excitation mechanism which causes the luminescence of lines with determined excitation potentials of the upper level. The appearance of flares and whiskers in the same points with a specific magnetic field configuration, the analogous character of luminescence of the line of metals in the flares and in the whiskers, and also a series of other factors, indicate the possibility of their having a common nature. The bibliography has 13 titles. [Translation of abstract] [GC]

SUB CODE: 20, 14, 03/

Card 2/2 JS

22109

S/035/61/000/003/036/048  
A001/A101

3.1540

AUTHOR:

Koval', A.N.

TITLE:

A spectroscopic investigation of the D $\alpha$  line in flares

PERIODICAL:

Referativnyy zhurnal. Astronomiya i Geodeziya, no. 3, 1961, 54, abstract 3A457 ("Izv. Krymsk. astrofiz. observ.", 1960, v. 22, 81-83, Engl. summary)

TEXT:

The author investigated the behavior of line  $\lambda 6561.105$  in disturbed and undisturbed regions in 12 cases of flares. He shows that equivalent width of this line in disturbed regions increases, and this broadening is connected neither with random nor systematic errors. The broadening of the equivalent width of line  $\lambda 6561.105$  in disturbed regions indicates, possibly, the intensification of the D $\alpha$  line in the flares considered.

Author's summary

[Abstracter's note: Complete translation]

Card. 1/1

38809

S/035/62/000/006/015/064/

A001/A101

2.1540  
AUTHORS: Severnyy, A. B., Koval', A. N.

TITLE: Investigation of broadening of emission of flare strong lines and whiskers. I.

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 6, 1962, 55-56, abstract 6A414 ("Izv. Krymsk. astrofiz. observ.", 1961, v. 26, 3-40, English summary)

TEXT: Profiles of emission wings in whiskers and an eruptive flare over the limb are analyzed. It was found that distribution of emission in the wings of whiskers and in the eruptive flare over the limb cannot be explained by the Stark effect, although in nuclei of strong hydrogen lines the Stark effect may play a marked role. Distribution of the form  $e^{-\sqrt{\Delta\lambda}}$  also does not satisfy the observed distribution of emission in the wings of whiskers and eruptive flares; fair agreement with observations, which is sometimes obtained, may be due to poor image quality, tremors of the image in the slit, and low resolving power. Doppler emission distribution shows good agreement with observations in all cases considered. The authors discuss the possibility of representing emission

Card 1/2

Investigation of broadening ...

S/035/62/000/006/015/064  
A001/A101

of whiskers and wings of flares as emission arising in a comparatively cold jet with a constant velocity gradient, which was formed during a contraction or expansion of a flare. In most cases such a concept agrees with observations even better than Doppler effect. Movement velocities of these jets ( $\sim 300$  km/sec) turn out to be of the same order as mean observed velocities of extension and contraction of flares on the limb. In individual cases the best agreement with observations is shown by Doppler broadening due to macroscopic disorderly movements at speeds of  $\sim 100$  km/sec. The analysis of profiles of emission of an eruptive flare on the limb presents a rather complicated picture of comparatively slow movement of the protrusion as a whole and more rapid extension of a region giving rise to broad emission. Superposition of emission in such a multi-step movement is fairly well presented by Doppler distribution. The analysis of emission of metallic lines warrants the conclusion that it can originate in the chromospheric region surrounding the "nucleus" of a flare or in a region in which originates strongly broadened hydrogen emission. There are 20 references.

Author's summary

[Abstracter's note: Complete translation]

Card 2/2

ACCESSION NR: AR4021617

S/0269/64/000/002/0059/0059

SOURCE: RZh. Astronomiya, Abs. 2.51.416

AUTHOR: Koval', A. N.; Sleshenko, N. V.

TITLE: Comparison of certain spectral characteristics of proton and nonproton flare

CITED SOURCE: Izv. Krymsk. astrofiz. observ. v. 30, 1963, 200-210

TOPIC TAGS: sun, chromospheric flare, solar flare, solar activity, proton flare, nonproton flare, solar spectrum, high-energy proton

TRANSLATION: The most interesting peculiarities of the spectra of 7 proton and 21 nonproton flares observed in 1957-1960 are discussed. It is shown that there is no essential difference in the character of the spectra of proton and nonproton flares nor in the conditions for excitation of lines of metals, the depth of centers of continuous emission and the distribution of intensity of continuous spectral emission. To a considerable extent proton flares differ only by having

Card 1/2

ACCESSION NR: ARL021617

a higher intensity of all processes involved; broad emission line widths, intense movements of absorbing gases (dark surges, often in the form of "mustaches") and bright continuous emission. The identity of the spectra shows that those regions of a flare which determine the character of its visible spectrum scarcely are responsible for the generation of high-energy protons. Bibliography of 7 titles. Author's abstract.

DATE ACQ: 09Mar64

SUB CODE: AS

ENCL: 00

Card 2/2

KOVAL, A.S.

USSR/Cultivated Plants - Grains

M-4

Abs Jour : Ref Zhur - Biol., No 1, 1958, No 1520

Author : A.S. Koval'

Inst : Not Given

Title : Corn in Bulgaria

Orig Pub : Kukuruz, 1957, No 4, 61-62

Abstract : No abstract

Card : 1/1

S/712/62/028/000/010/020  
E010/E401

AUTHOR: Koval', A.N.

TITLE: Shifts of absorption lines associated with the  
"moustache" phenomenon

SOURCE: Akademiya nauk SSSR. Krymskaya astrofizicheskaya  
observatoriya. Izvestiya. v.28. 1962. 241-245

TEXT: The author set two purposes: the study of absorption line shifts accompanying "moustaches" and the investigation of a relation between the shift magnitude and the depth of the line origination. To this aim, the good spectrograms of "moustaches" taken on July 29, 1959 by means of an echelette grating were selected. All absorption lines are found to be shifted toward the violet. To clarify the nature of these shifts, photometric sections of several lines of different intensities were made at an "undisturbed" spot and at a spot of bending. The lines at the bending spot are broadened and, on the whole, are shifted toward the violet as shown in Fig.2. The shifts of Fe and Fe<sup>+</sup> lines were measured by means of a MIP-12 (MIR-12) microscope. The next problem dealt with is the determination of the relation  
Card 1/4



Shifts of absorption lines ...

S/712/62/028/000/010/020  
E010/E401

between the shift magnitude and the depth of origination of individual Fraunhofer lines. Assuming the equivalent width of a line to have the form

$$W = \int_0^{\infty} I d\bar{\tau}$$

the mean optical depth  $\bar{\tau}$  of a line origination is found from the relation

$$\int_0^{\bar{\tau}} I d\bar{\tau} = \int_{\bar{\tau}}^{\infty} I d\bar{\tau}$$

Using the data by M. Minnaert (Bull. Astron. Inst. Netherl. v.10, 1948, 399) the author calculates the mean optical depth of line origination and plots graphically the relation of mean velocity values,  $V$  km/sec, versus the depth (Fig.5). Recalculating the values of optical depth into those of geometrical thickness  $h$ , and plotting the  $v$ -versus- $h$  curve (Fig.6), the author concludes that the lines selected were formed at depths from 230 to

Card 2/4



Fig.6.

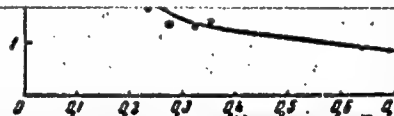


Fig.5.

Card 3/4

APPROVED FOR RELEASE 06/14/2000

CIA-RDP86-00513R000825510012-7

Shifts of absorption lines ...

S/712/62/028/000/010/020  
E010/E401

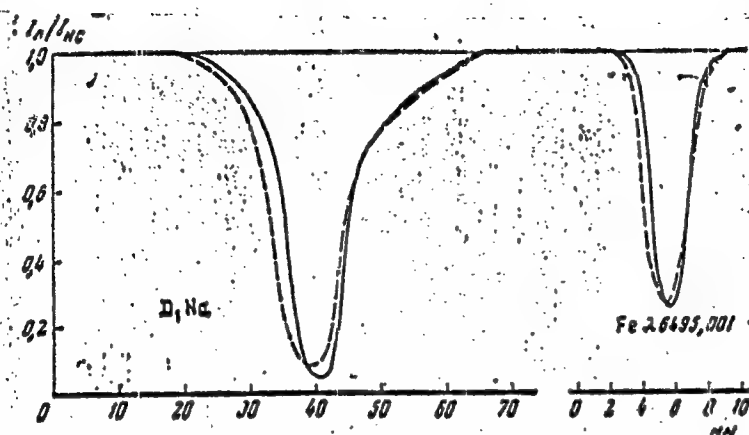


Fig.2. Photometric sections of the D<sub>1</sub> line of Na and  $\lambda 6495.001 \text{ \AA}$  of Fe. Continuous line - undisturbed contour, dash line - contour at a bending spot.  
Card 4/4

KOVAL', A.V., kandidat meditsinskikh nauk; KUZHENKO, L.N., professor, doktor meditsinskikh nauk, zavednyushchiy.

Case of a large adamantinoma of the lower jaw. Stomatologia no.4:50-5  
Jl-Ag '53. (MLRA 6:9)

1. Klinika stomatologii kafedry gosspital'noy khirurgii L'vovskogo meditsinskogo instituta. (Jaws--Tumors)

KOVAL', A.V., kandidat meditsinskikh nauk

Radicular and follicular cysts of the jaws. Stomatologia no.1:  
48-49 Ja-F '55. (MLPA 8:5)

1. Iz kliniki stomatologii kafedry gosspital'noy khirurgii (zav.  
prof. L.N.Kuzmenko) L'vovskogo meditsinskogo instituta (dir. prof.  
L.N.Kuzmenko).

(CYSTS, DENTIGEROUS,  
follicular & radicular)

KOVAL', A.V., kandidat meditsinskikh nauk.

Modified splint with an inclined plane for fractures of the lower  
jaw. Stomatologiya no.5:52 S-O '55. (MLRA 9:2)

1. Iz kafedry gosspital'noy khirurgii (sav.-prof. L.N. Kuzmenko)  
L'vovskogo meditsinskogo instituta.

(JAWS--FRACTURE) (SPLINTS (SURGERY))

KOVAL', A.V., dotsent (L'vov, ul.Repina, d.8, kv.3)

Noma appearing in a patient with bullous epidermolysis. Nov.  
khir.arkh. no.4:108-110 J1-Ag '59. (MIRA 12:11)

1. Klinika stomatologii kafedry gospiatal'noy khirurgii (zav. -  
prof.L.N.Kuzmenko) L'vovskogo meditsinskogo instituta.  
(STOMATITIS) (SKIN--DISEASES)

KOVAL', A.V.

Experimental model of a congenital cleft palate. Stomatologiya  
42 no.4:84 JI-Ag'63 (MIRA 17:4)

1. Iz kaf'edy khirurgicheskoy stomatologii ( zav. - A.V. Koval')  
i gistologii ( zav. A.P. Dyhan) L'vovskogo meditsinskogo insti-  
tuta.

STUPIN, N.K., inzh.; KOVAL', A.V.

Dedusting during boring with perforators on placers in the  
Northeast. Bor'ba s sil. 6:112-115 '64 (NIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zolota i  
redkikh metallov, Magadan.



KOVAL', A.V.

Dry-type dust collector. Gor. zhur. no.7:72 JI '64.

(MIRA 1:10)

ACC.NR: AP7007585

SOURCE CODE: UR/0432/66/000/002/0038 0040

AUTHOR: Dombragov, R. M. (Candidate of technical sciences); Koval', A. V.; Tsapenko, V. K.

CRG: none

TITLE: Arbitrary-form pulse generator

SOURCE: Mekhanizatsiya i avtomatizatsiya upravleniya, no. 2, 1966, 38-40

TOPIC TAGS: pulse generator, computer memory

SUB CODE: 00  
ABSTRACT: The Kiev Polytechnical Institute has developed a test generator which produces a model of any curve which is a single-valued time function, using the piecewise-stepped approximation. The generator provides for relatively rapid change in signal form, smooth change in pulse length (1.5 - 1,000 msec) and pulse repetition frequency (0 - 200 p/sec). External synch with firing pulse delay of 5 - 5,000 msec can be used. The unit uses a memory device with a code-to-signal converter and readout system. The memory unit includes 350 memory cells divided into 50 address channels. The article presents a block diagram of the device plus oscillograms of pulses formed in triangular and bell form. The primary error in the system as of now is the error of conversion from code to signal, which can be reduced by using a signal-to-code converter with more bit positions. Orig. art. has: 2 figures. [JPRS: 36,501]

Card 1/1

UDC: 621.373.431.3

0928/521

ACC NR: AR7004292

SOURCE CODE: UR/0274/66/000/011/A073/173

AUTHOR: Koval', A. V.

TITLE: Comparison between some parameters of electric signals presented by the method of piecewise-step approximation

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 11A590

REF SOURCE: Vestn. Kiyevsk. politekhn. in-ta. Ser. radiotekhn. no. 2, 1965, 19-202

TOPIC TAGS: communication channel, radio communication

ABSTRACT: In studying radar communication channels, it may be necessary to shape pulses with a specified envelope. One of the methods of ensuring such an envelope, viz., a method of piecewise-step approximation with time-uniform discretization, is considered. The accuracy of the envelope, in this method, is determined by the number of time-discretization elements. The number of these elements should be chosen on the basis of specific permissible deviations, because the step structure of the simulated signal may include admissible as well as inadmissible deviations. Relations for definite parameters of piecewise-step signals are derived; they can be used with various shapes of signals. These parameters are: number of discretization elements; energy of piecewise-step pulse; spectral characteristics; active duration and active width of the spectrum. These parameters for a piecewise-step signal and for an ideal signal are compared. Bibliography of 4 titles. A. G. [Translation of abstract]

SUB CODE: 09

Card 1/1

UDC: 621.374.2

ACC NR: AP6032554

SOURCE CODE: UR/0125/66/000/009/0032/0034

AUTHOR: Nikitin, B. M.; Koval', A. Ye., Zabaluyev, Yu. I.; Kaganovskiy, G. P.; Moshkevich, Ye. I.; Medovar, B. I.; Latash, Yu. V.

ORG: [Nikitin, Koval'] UKRNIISPETSSTAL'; [Zabaluyev, Kaganovskiy, Moshkevich] Dneprospetsstal' Plant (Zavod "Dneprospetsstal"); [Medovar, Latash] Electric Welding Institute im. Ye. O. Paton AN USSR (Institut elektrosvarki AN USSR)

TITLE: The behavior of aluminum during electroslog melting of silicon steel

SOURCE: Avtomaticheskaya svarka, no. 9, 1966, 32-34

TOPIC TAGS: aluminum, electroslog melting, silicon steel, mechanical property

ABSTRACT: The authors study the behavior of aluminum during electroslog melting of silicon steel. E3, 30KhGSNA and 25Kh2GNTA steel were melted using AN-291 slag for studying the effect of chemical composition of steel on the recovery of aluminum from slag. The test specimens were cut into oblong templates for studying the chemical heterogeneity of the metal. Variation of average aluminum concentration with respect to ingot height is given. Industrial data shows that the quantity of aluminum recovered from slag increases by 0.01-0.06% as silicon content in the metal is increased from 1.16 to 3.22%. Data on silicon and aluminum content in 30KhGSNASH steel, processed by correlation analysis, show that silicon is responsible for aluminum recovery

Card 1/2

UDC: 669.187.6

ACC NR: AP6032554

from slag. It should be pointed out that the recovery of aluminum during melting is not steady. Aluminum content in the metal increases during the first part of silicon steel melting and decreases subsequently. The decrease in aluminum recovery is explained by the accumulation of silica and a decreasing alumina content in the slag. This brings about a higher silicon concentration and thus decreases aluminum concentration. The use of slag materials which ensure stable aluminum concentration with respect to ingot height make it possible to obtain metal with uniform mechanical and other properties. Orig. art. has: 3 figures, 1 table, 1 formula.

SUB CODE: 11/ SUBM DATE: 19Aug65/ ORIG REF: 002

Card 2/2

GORANSKIY, Mikhail Nikolayevich, kand.ekon.nauk; PSHONIK, B.M.,  
starshiy red., otv. za vypusk; KOVAL', A.Ye., red.; ZIMA,  
Ye.G., tekhn. red.

[The 22d Congress of the CPSU on the consolidation of the  
economic and defensive power of the U.S.S.R.] XXII s"ezd  
KPSS ob ukrepleni ekonomicheskogo i oboronnogo mogushche-  
stva SSSR. Minsk, 1962. 27 p. (Obshchestvo po raspro-  
straneniuiu politicheskikh i nauchnykh znani Belorusskoi  
SSR, no.10) (MIRA 15:10)  
(Russia--Economic policy) (Russia--Defenses)

KOVAL', Boris Antonovich; GUBSKIY, Petr Kondrat'yevich; POLUYANOV,  
B.M., retsenzent;

[Centrifuge operator of a coal preparation plant] Senti-  
fugovshchik ugleobogatitel'noi fabriki. Moskva, Izd-vo  
"Nedra," 1964. 77 p. (MIRA 17:5)

KOVAL' B.A.

3-11-3/17

AUTHOR: Koval' B.A., Minister of Higher Education, Ukrainian SSR

TITLE: Success of Higher Education in the Ukraine (Uspekhi vysshego obrazovaniya na Ukraine)

PERIODICAL: Vestnik Vysshey Shkoly, 1957, # 11, pp 16 - 21 (USSR)

ABSTRACT: The author describes the development of higher education in the Ukrainian SSR during the post-revolution period. He mentions the organization of many higher schools within the period from 1921 to 1939. During the Soviet regime the number of vuzes in the Ukraine increased by 5 times and the number of students amounts at present to 325,000. In 1955, 45,547 engineers, agronomists and other specialists left the vuzes, increasing to 48,804 in 1956, and to 53,644 in 1957. Vuzes of the Ukrainian western areas released 9,710 specialists in 1957. The development of secondary special education was very successful. In 1945/46 there were 532 technical schools with 164,089 pupils, in 1950/51 this figure increased to 584 and 227,764 and in 1956/57 to 586 and 359,177. Correspondence and evening courses have an important part in the educational system. In 1957, 146,826 of the Ukrainian students were trained by correspondence and in evening courses. Evening courses were introduced during the past 2 or 3 years at the Kiyev Polytechnic Institute and various other institutes. Correspondence

Card 1/3

3-11-3/17

Success of Higher Education in the Ukraine

courses were established at 13 vuzes. Great attention is devoted to the formation of a highly qualified teaching staff. Presently, 18,816 teachers are working at Ukrainian vuzes, among them 7,553 dotsents and candidates of sciences and 879 professors and doctors of sciences. In 1953, competition was introduced for the replacement of the posts of professors, dotsents, teachers and assistants. Since the ideological training is a very important factor in the Soviet educational system, an institute for improving the qualification in Marxist-Leninist education was established in 1949 and reorganized in 1955/56. Investigations conducted by vuzes in accordance with industrial contracts increase every year. In 1956, they amounted to 40.7 million rubles. In order to improve scientific research in vuzes, 6 laboratories for fundamental research will be created at the Kharkov and Kiyev polytechnic institutes and at the L'vov University. Industrial ministries assigned funds to the vuzes which will help organize three laboratories at the Kharkov Polytechnical Institute covering fat chemistry, turbines, combine and tractor engines. At the expense of the coal industry, laboratories will be established at the Kharkov and Dnepropetrovsk mining institutes and at the Donetsk Industrial Institute. Radio

Card 2/3



KOVAL', B. I.

"Problema urbanizatsii v sovremennoy Brazili." "

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences  
Moscow, 3-10 Aug 64.

KOVAL', B.M.

Device for holding and replacing ampules with radioactive isotope liquids. Med.rad. 9 no.9:88 S '64. (MIRA 18:4)

1. Borislavskiy mezhrayonnyy protivozobnyy dispanser L'vovskoy oblasti.

UDOD, V.M.; KOVAL', B.M.(Borislav)

Functional activity of the nodes and diffuse thyroid tissue  
in patients with endemic goiter. Med.rad. 6 no.8:74-76 Ag  
'61. (MIRA 14:8)

(GOITER) (THYROID GLAND--RADIOGRAPHY)

KOVAL', B.M.

Device for filtration in determining blood sugar. Lab. delo 7  
no.3:58 Mr '61. (MIRA 14:3)

1. Drogobyhskiy oblastnoy protivozobnyy dispanser (glavnyy vrach  
V.M.Udod).

(FILTERS AND FILTRATION--EQUIPMENT AND SUPPLIES)  
(BLOOD SUGAR)

KOVAL', D., elektromekhanik

Cargo winches on the "Belomorskles" type timber carriers. Mor.  
flot 25 no.2:30-32 F '65. (MIRA 18:4)

1. Teplokhod "Altayles" Sakhalinskogo upravleniya morskogo flota  
Dal'nevostochnogo parokhodstva.

KOVAL', D.

Class for studying traffic regulations. Avt. transp. 34 no.6:  
29 Je '56. (MLRA 9:9)

(Traffic regulations--Study and teaching)

*Koval' D*

KOVAL', D.

Stands used in studying the performance ignition system. Avt.  
transp. 35 no. 11:28 N '57. (MIRA 10:12)  
(Automobiles--Ignition)

KOVAL', D.N.

Changes in the activity of the cardiovascular system in spinal cord injury. Vrach, delo no.6:599-603 Je '59. (MIRA 12:12)

1. Kafedra fakul'tetskoy khirurgii (sav. - chlen-korrespondent AN USSR, prof. I.N. Ishchenko) Kiyevskogo meditsinskogo instituta.  
(CARDIOVASCULAR SYSTEM)  
(SPINAL CORD--WOUNDS AND INJURIES)



KOVAL', D. N., Cand Med Sci -- (diss) "Data on the problem dealing with the changes in the cardiovascular system after trauma of the spinal cord (Experimental research)," Kiev, 1960, 17 pp (Kiev Medical Institute in Acad. A. A. Bogomolets) (KL, 35-60, 126)

KOVAL', D.Ye. (Kiyev, 53, Kiyanovskiy per., d.6. kv.3); KUTSENOK, Ya.B.

Precise measurement of the cervicodiaphysial angle, the angle of deviation and the "dihedral angle of deviation" of the femoral neck. Ortop., travm. i protez. 24 no.12:60-74 D '63.

(MIRA 17:7)

1. Ukrainskogo instituta ortopedii i travmatologii (direktor - dotsent I.P. Alekseyenko) i Kiyevskogo instituta usovershenstvovaniya vrachey (rektor - dotsent M.N. Umovist, nauchnyy rukovoditel' UNZITO i zaveduyushchiy kafedroy Kiyevskogo instituta usovershenstvovaniya vrachey - chlen-korrespondent AMN SSSR prof. F.R. Bogdanov).

YEROPKIN, Yu. I.; Pririmali uchastiye: KOVAL', E. M.; SEMENOVA, Ye. A.;  
YUDINA, L. V.; SHUVALOVA, L. V.

Complex dressing of molybdenum ore. Trudy Mekhanobr no. 131:  
191-195 '62. (MIRA 17:5)

YEROPKIN, Yu.I.; KOVAL', E.M.

Effect of alkaline modifiers on the selective flotation of  
loparite, aegirite, and nephelite. Obog. rud 9 no.4:6-10  
'64. (MIRA 18:5)

KOVAL', R.Z.; NELEN, Ye.S.

Microflora of landscaped plantings in Vladivostok. Soob.DVFAF SSSR  
no.11:50-58 '59. (MIRA 13:11)

1. Dal'nevostochnyy filial imeni V.I.Komarova Sibirskogo otdeleniya  
AN SSSR.

(Vladivostok--Fungi, Phytopathogenic)

KOVAL', E. Z., nauchnyy sotrudnik; NELEN, Ye. S., nauchnyy sotrudnik

Powdery mildew of the Siberian pea tree. Zashch. rast. ot vred.  
i bol. 5 no. 10:52-53 0 '60. (MIRA 16:1)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR.

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(Soviet Far East—Mildew)

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1. Dal'nevostochnyy filial imeni V.I.Komarova Sibirskogo otdeleniya  
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